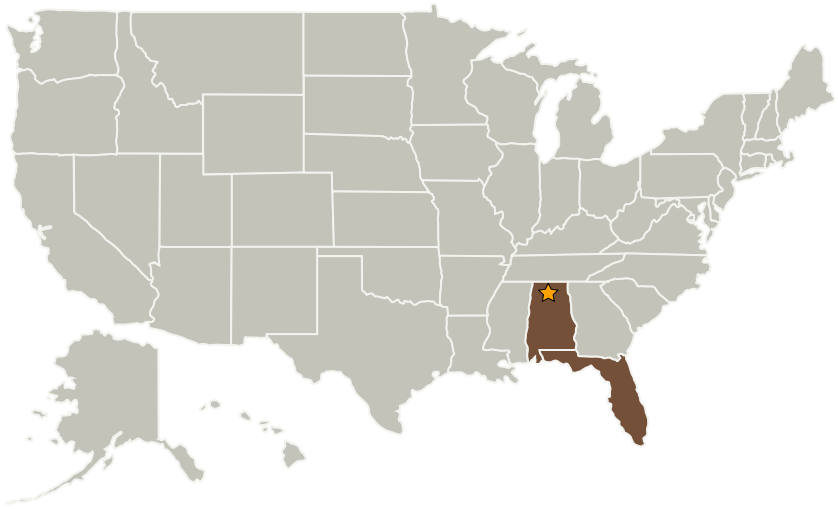
Methane Liquid Level Sensor, Phase I

Completed Technology Project (2006 - 2006)

Project Introduction

Advanced Technologies Group, Inc. proposes the development of a Methane Liquid-Level Sensor, (MLS) for In-Space cryogenic storage capable of continuous monitoring of liquid quantities to better than 1% accuracy. The proposed sensor builds on previous liquid hydrogen sensor development successes and patents. It can be utilized to measure cryogenic propellants, and sub-critical cryogenic fluids in use on a wide range of space applications and in ground applications to monitor fluids ranging from liquid methane to MMH and N2O4. The MLS can also indicate the presence of contaminants such as nitrogen used to purge the system. The current methods use either wire resistance measurements, capacitance or point sensors, combined with pressure and temperature measurements. The MLS will be lighter, require less energy to operate, and provide less heat leak than existing technologies. Current techniques will not function correctly in boiling or stratified liquid cryogens or in reduced gravity. During phase I, Proof-of Concept experiments will be performed with liquid methane. Commercial applications in the Power/fuel industry have been identified.

Primary U.S. Work Locations and Key Partners



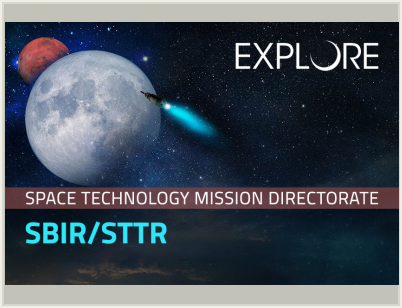


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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Marshall Space Flight Center(MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Advanced Technologies Group, Inc.	Supporting Organization	Industry	Stuart, Florida

Primary U.S. Work Locations	
Alabama	Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.3 Cryogenic